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FEDERAL STANDARD STOCK CATALOG

Section IV

(Part 5)

FEDERAL SPECIFICATION

FOR

CLEANER; FOR PAINTED SURFACES,
CONTAINING SYNTHETIC DETERGENT

This specification was approved on the above date by the Director, Bureau of Federal Supply, for the use of all departments and establishments of the Government, and shall become effective not later than July 15, 1947 for use in procurement initiated on or after that date. It may be put into effect, however, at any earlier date after promulgation.

A. APPLICABLE SPECIFICATIONS

A-1. The following Federal Specifications, of the issues in effect on date of invitation for bids, shall form a part of this specification:

- L-S-626—Sponges; Cellulose-Type.
- O-C-141—Carbon-Tetrachloride; Technical-Grade.
- O-T-671—Trisodium-Phosphate; Technical (Phosphate Cleaner).
- P-S-536—Soap and Soap-Products; General Specifications (Methods for Sampling and Testing).
- EE-S-321—Shortening.
- TT-E-506—Enamel; Interior, Gloss, Light-Tints and White.
- TT-E-508—Enamel; Interior, Semigloss, Tints and White.
- TT-M-251—Metallic-Brown; Dry (Paint-Pigment).
- TT-P-141—Paint, Varnish, Lacquer, and Related Materials; General Specification for Inspection, Sampling, and Testing.
- TT-P-659—Primer-Surfacer; Synthetic, Tints and White (for Metal and Wood Hospital Furniture).
- VV-K-211—Kerosene.
- VV-O-496—Oil; Lubricating, Class D (for Internal Combustion Engines other than Aircraft and Diesel).

B. GRADE AND TYPES

B-1. Cleaner for painted surfaces covered by this specification shall be of one grade only, and of the following types, as specified in the invitation for bids:

- Type I.—Powder.
- Type II.—Flake.
- Type III.—Liquid.
- Type IV.—Paste.

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Cleaner

SB 5259

C. MATERIAL

C-1. The cleaner shall be a uniform, homogeneous product, free from any objectionable odor, and consisting essentially of synthetic organic detergents. It shall contain no abrasives or fatty acid soaps and shall not be irritating to the skin.

D. GENERAL REQUIREMENTS

D-1. *Bid samples.*—Each bidder shall submit a sample of the cleaner he will deliver, for inspection and test to determine conformity with the requirements of this specification.

E. DETAIL REQUIREMENTS

E-1. The cleaner shall be satisfactory for use in cleaning operations with soft, hard, or sea water.

E-2. *Directions for use.*—The manufacturer shall provide with each package a complete set of clear and concise instructions for use of the cleaner, including at least those uses listed in paragraph 1-3.

E-3. *Stability in storage.*—The cleaner shall be stable and not lose effectiveness or otherwise deteriorate when stored in a closed container at normal temperatures.

E-4. *pH value.*—The pH value of a 1.0 percent distilled water solution (by weight) of the cleaner shall be not less than 5.5 nor more than 10.0, when tested as described in paragraph F-2a(1).

E-5. *Solubility.*—The cleaner shall be completely soluble in distilled water, when tested as described in paragraph F-2a(2).

E-6. *Rinsing properties.*—The cleaner shall be free-rinsing, when tested as described in paragraph F-2a(3).

E-7. *Deleterious action on painted surfaces.*—A 0.2 percent (by weight) solution of the cleaner shall not cause greater than one-half the loss in specular gloss of painted surfaces caused by a 0.2 percent solution of trisodium phosphate, when tested as described in paragraph F-2a(4).

E-8. *Cleaning efficiency.*—A solution of 50 grams of cleaner per liter, in distilled or sea water, shall exhibit a cleaning efficiency of not less than 80 percent, when tested as described in paragraph F-2a(5).

F. METHODS OF SAMPLING, INSPECTION, AND TESTS

F-1. *Sampling.*—The cleaner shall be sampled in accordance with the applicable methods of Federal Specification P-S-536.

F-2. Tests.

F-2a. *Tests on bid samples.*—Tests on bid samples shall be made by a laboratory designated by the Government to determine conformity with the requirements of this specification. The tests, unless otherwise specified, shall be made by the following methods:

F-2a(1). *pH value.*—Dissolve 1.0 gram of the cleaner in 100 milliliters of freshly boiled and cooled (to room temperature) distilled water, and mix. Determine the pH value of this solution, or a portion of it, to the nearest 0.1 unit at 25° C. by means of a suitable pH meter which employs the glass electrode. No correction for sodium ion concentration shall be made.

F-2a(2). *Solubility.*—To 5.0 grams of the cleaner add sufficient distilled water to make 100 milliliters of solution. This solution shall be maintained at 25° C. \pm 1° C. and stirred vigorously for 5 minutes. The solution shall be inspected immediately thereafter for undissolved material.

F-2a(3). *Rinsing properties.*—

F-2a(3)a. *Synthetic sea water.*—Synthetic sea water for use in tests described in this specification shall be prepared according to the following formula:

| | Grams per liter |
|--|-----------------|
| Magnesium chloride ($\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$) | 11.0 |
| Calcium chloride ($\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$) | 1.6 |
| Anhydrous sodium sulfate (Na_2SO_4) | 4.0 |
| Sodium chloride (NaCl) | 25.0 |

The salts shall be of reagent grade and shall be dissolved and diluted to 1 liter with distilled water.

F-2a(3)b. *Procedure.*—Dissolve 5.0 grams of the cleaner as completely as possible in 95 milliliters of synthetic sea water at 25° C. \pm 1° C. in a clean, 250-milliliter Erlenmeyer flask. Stopper and shake vigorously for 1 minute. Pour out the solution. Rinse the flask by the same procedure, using three separate 100-milliliter portions of synthetic sea water alone. Invert the flask, allow to dry, and examine for any residue not rinsed from the interior. The flask shall contain no more residue than a similar flask allowed to dry after rinsing with synthetic sea water alone.

F-2a(4). *Deleterious action on painted surfaces.*—

F-2a(4)a. *Measurement of specular gloss.*—Gloss shall be determined in accordance with method 610, of Federal Specification TT-P-141.

F-2a(4)b. *Test panels.*—Steel panels, approximately 3 by 10 by $\frac{1}{16}$ inches, shall be used. The panels shall be initially prepared by applying one brush coat each of paints conforming to the requirements of Federal Specifications TT-P-659, TT-E-508, and TT-E-506, in the order named. A drying time of not less than 4 days between coats and a minimum drying time of 4 days after application of the final coat shall be allowed. When tests are to be made, panels prepared as specified above or panels previously used for tests shall be lightly sanded to roughen the paint surface, remove any loose paint, and improve adhesion of the subsequent coat. One brush coat of paint conforming to the requirements of Federal Specification TT-E-506 shall then be applied and allowed to dry for 4 days.

F-2a(4)c. *Procedure.*—Prepare 1 liter each of a solution of trisodium phosphate conforming to Federal Specification O-T-671 and a solution of the cleaner under test at concentrations of 2 grams per liter in distilled water. Measure the specular gloss of two panels and then immerse one panel in each of these solutions, kept at room temperature, for 1 hour. Remove the panels, rinse thoroughly in distilled water, and dry at room temperature for at least 1 hour. Again measure the specular gloss of each panel.

The percentage decrease in gloss of the portion of the panel immersed, compared with the gloss of the same panel before immersion, shall be reported for the cleaner under test and for the trisodium phosphate.

F-2a(5). *Cleaning efficiency.*—

F-2a(5)a. *Washability apparatus.*—The apparatus to be used in washing soiled painted panels with a solution of the cleaner, to determine cleaning efficiency, shall be equivalent to the apparatus illustrated by figures 1 and 2. This apparatus shall consist of a wooden-base board covered with tin plate, at one edge of which is mounted a heavy-duty, air-pressure-operated windshield wiper. The wiper arm shall extend part way across the base plate, and to its end shall be soldered a brass box to serve as a receptacle for a cellulose sponge conforming to the requirements of Federal Specification L-S-626 for type 1 sponges.¹ The sponge shall be cut to dimensions of 4¼ by 2¾ by 1½ inches dry, or 5 by 3 by 2¼ inches wet. The weight of the box plus dry sponge shall be adjusted to 1 pound, 11 ounces, by means of lead washers placed on pins at the corners of the box, and the spring in the wiper arm disconnected to avoid extra pressure. In operation, a soiled painted panel shall be held by stops at the center of stroke of the wiper arm, and the number of strokes recorded on an automatic counter. It is not absolutely essential that the sponge box (and sponge) be moved by a windshield wiper, as good results can be obtained by moving the sponge box back and forth in the same manner by hand.

F-2a(5)b. *Preparation of soiled painted panels.*—Painted panels, shall be prepared as described in paragraph F-2a(4)b. The panels, laid flat, shall be evenly soiled, using a brush, by applying the following well-shaken mixture freshly prepared and immediately used for each determination:

| | Grams |
|---|-------|
| Metallic brown (Fed. Spec. TT-M-251)..... | 20 |
| Kerosene (Fed. Spec. VV-K-211)..... | 20 |
| Carbon-tetrachloride, technical-grade (Fed. Spec. O-C-141)..... | 20 |
| Liquid petrolatum (U. S. P.)..... | 1 |
| Lubricating oil (Fed. Spec. VV-O-496)..... | 1 |
| Hydrogenated vegetable shortening (Fed. Spec. EE-S-321)..... | 1 |

The soiled panels shall then be baked in a horizontal position in an oven having a circulating shelf at 100° to 105° C. for ½ hour, and they shall be used within 24 hours after soiling. Soiled panels prepared in this manner shall not be used if the reflectance is outside the limits of 10 to 14 percent.

F-2a(5)c. *Procedure.*—Measure the reflectance of a painted panel prepared as described in paragraph F-2a(4)b, using method 612 of Federal Specification TT-P-141, and then soil the panel as described in paragraph F-2a(5)b. Place the soiled panel in the space in the base plate of the washability apparatus and pour over

¹Material manufactured by E. I. du Pont de Nemours and Company, Wilmington, Delaware, has been found suitable.

it 50 milliliters of a distilled water solution containing 50 grams of cleaner per liter of solution. Allow the panel to soak 1 minute, and in the meantime pour 25 milliliters of the same solution over the cellulose sponge and insert this in the box attached to the wiper arm. Start the wiper at the rate of one stroke (½ cycle) per second and allow to continue for 100 strokes (50 cycles). Allow the same detergent solution to drip on the panel from a burette at such a rate that approximately 12 milliliters are delivered during the 100-stroke period. Remove the panel and sponge, rinse the panel, and squeeze out the sponge in cold tap water. Replace the panel in the space provided for it, but reversed end for end from its previous position. Repeat all the previous cleaning steps but omitting the addition of 50 milliliters of solution to the panel. Remove the panel, rinse well with tap water, and dry at room temperature for at least 1 hour. Again measure the reflectance of the panel. Calculate percent cleaning efficiency by the following formula:

$$\text{Percent cleaning efficiency} = \frac{R_2 \times 100}{R_1}$$

where:

R_1 = Reflectance of unsoiled, unwashed, painted panel.
 R_2 = Reflectance of soiled, washed, painted panel.

Make a duplicate determination of percent of cleaning efficiency by the above procedure and average the results obtained. Repeat the above using synthetic sea water (see par. F-2a(3)a) in place of distilled water.

F-2b. *Inspection tests (at a Government laboratory).*—Inspection tests shall consist of such chemical, physical, and performance tests as are necessary to determine that the cleaner submitted is identical to the bid sample furnished. (See par. F-2a.)

G. PACKAGING, PACKING, AND MARKING FOR SHIPMENT

G-1. *Packaging.*—Unless otherwise specified, commercial packages are acceptable under this specification.

G-2. *Packing.*—Unless otherwise specified, the subject commodity shall be packed in substantial commercial containers of the type, size, and kind commonly used for the purpose, so constructed as to insure acceptance and safe delivery by common or other carriers, at the lowest rate, to the point of delivery called for in the contract or purchase order.

G-3. *Marking.*—

G-3a. *Issue packages.*—Unless otherwise specified, each package shall be marked with the name of the material, the type, quantity contained therein, the name of the manufacturer, and directions for use.

G-3b. *Shipping containers.*—Unless otherwise specified, shipping containers shall be marked with the name of the material, the type, and quantity contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, and the number of the contract or order.

H. REQUIREMENTS APPLICABLE TO INDIVIDUAL DEPARTMENTS

H-1. The following departmental specifications and publications, of the issues in effect on date of invitation for bids, and special requirements, shall form a part of this specification, and shall be applicable to purchases made under this specification by the respective departments.

H-2. *Army*.—U. S. Army Specification No. 100-2, Standard Specification for Marking Shipments by Contractors, copies of which may be obtained without cost upon application to the procuring agency.

H-3. *Navy*.—

H-3a. *Applicable specifications and other publications.*—

Joint Army-Navy Specifications:

JAN-P-105—Packaging and Packing for Overseas Shipment—Boxes, Wood, Cleated, Plywood.

JAN-P-106—Packaging and Packing for Overseas Shipment—Boxes; Wood, Nailed.

JAN-P-107—Packaging and Packing for Overseas Shipment—Boxes, Wood, Wire-Bound.

JAN-P-108—Packaging and Packing for Overseas Shipment—Boxes, Fiberboard (V-Board and W-Board), Exterior and Interior.

JAN-P-125—Packaging and Packing for Overseas Shipment—Barrier-Materials, Waterproof, Flexible.

Navy Department Specification:

General Specifications for Inspection of Material.

Bureau of Supplies and Accounts Publication:

Navy Shipment Marking Handbook.

Interstate Commerce Commission Publication:

Regulations for Transportation of Explosives and Other Dangerous Articles by Freight.

H-3a(1). Copies of Federal and Joint Army-Navy specifications (required for Navy purchases), Navy Department specifications, and the Navy Shipment Marking Handbook may be obtained without cost upon application to the Bureau of Supplies and Accounts, Navy Department, Washington 25, D. C., except that Naval activities should make application to the Supply Officer in Command, Naval Supply Depot, Bayonne, N. J. When requesting specifications, refer to both title and number (or symbol).

H-3a(2). Information as to the availability of Regulations for Transportation of Explosives and Other Dangerous Articles by Freight may be obtained from the Interstate Commerce Commission, Washington 25, D. C.

H-3b. *Packaging*.—Cleaner shall be packaged in accordance with best commercial practice. Five-gallon lug-cover steel pails, if used, shall conform to the requirements of Specification 37D in the Interstate Commerce Commission Regulations, except that side seams shall be welded. The interior of the container shall

be treated with a baked-on enamel which shall neither affect nor be affected by the product packed; the exterior shall be coated with a baked-on corrosion-resistant enamel. Covers shall have a minimum of 12 lugs.

H-3c. *Packing*.—

H-3c(1). *For domestic shipment*.—Cleaner packaged as described in paragraph H-3b shall be packed in substantial commercial containers of the type, size, and kind commonly used for the purpose, so constructed as to insure acceptance and safe delivery by common or other carriers, at the lowest rate, to the point of delivery.

H-3c(2). *For overseas shipment*.—Cleaner packaged as described in paragraph H-3b shall be packed in cleated plywood boxes, nailed wood boxes, wirebound wood boxes, or fiberboard boxes conforming to the requirements of Joint Army-Navy Specifications JAN-P-105, JAN-P-106, JAN-P-107, and JAN-P-108, respectively. Shipping containers shall be lined with a sealed waterproof bag, or its equivalent, made from material conforming to the requirements of Joint Army-Navy Specification JAN-P-125, except that containers shall not be lined when cleaner is packaged in metal cans.

H-3c(3). *For domestic and overseas shipment*.—Five-gallon lug-cover steel pails, as specified in paragraph H-3b, will require no further packing.

H-3d. *Marking*.—In addition to any special marking required by the contract or order, marking of interior packages and shipping containers shall conform to the requirements of the latest issue of the Navy Shipment Marking Handbook.

H-3e. *Ordering information*.—Requests, requisitions, schedules, and contracts or orders should specify whether the subject commodity is to be packed and shipping containers marked for domestic or overseas shipment. (See pars. H-3c and H-3d.)

I. NOTES

I-1. Purchasers should exercise any desired options offered herein, and should specify the type required. (See pars. B-1, G-1, G-2, and G-3.)

I-2. *Basis of purchase*.—Material of each type should be purchased by net weight.

I-3. Material conforming to the requirements of this specification is intended for use in cleaning operations that require a non-abrasive cleaner, which will exhibit no harmful effect to the surface or to personnel. Typical uses are in removing oil, grease, and occupational soil from painted surfaces, and in general soil removal, by application from solution with a cloth, sponge, or brush, using either soft, hard, or sea water. THIS MATERIAL IS NOT INTENDED FOR USE ON AIRCRAFT SURFACES.

I-4. Federal specifications do not include all types, classes, grades, sizes, etc., of the commodities indicated by the titles of the specifications, or which are commercially available, but are intended to cover the types, etc., which are suitable for Federal Government requirements.

I-5. It is believed that this specification adequately describes the characteristics necessary to secure the desired material, and that normally no samples will be necessary prior to award to determine compliance with this specification. If, for any particular purpose, samples with bids are necessary, they should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid sample should be definitely stated, the specification to apply in all other respects.

I-6. An Index of Federal Specifications may be purchased as noted in the paragraph below, price to be obtained from the Superintendent of Documents.

I-7. Copies of this specification and the specifications listed in paragraph A-1 may be obtained upon application, accompanied by money order, postal note, coupon, or cash to Superintendent of Documents, Government Printing Office, Washington 25, D. C. Price 5 cents each; except P-S-536, 10 cents; and TT-P-141, 20 cents.

Notice.—When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

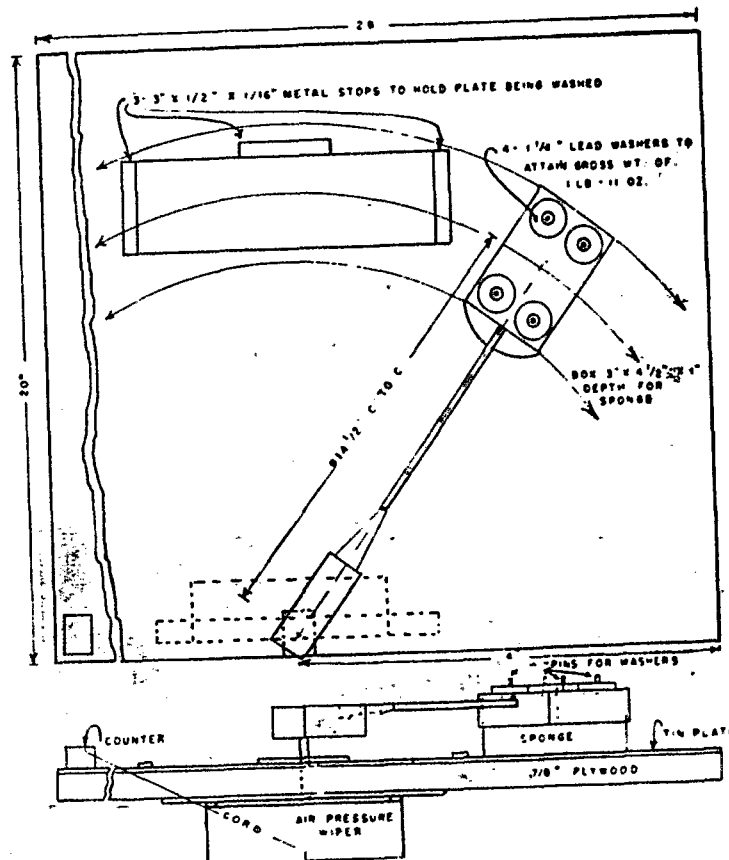


FIGURE 1.—Washability apparatus.

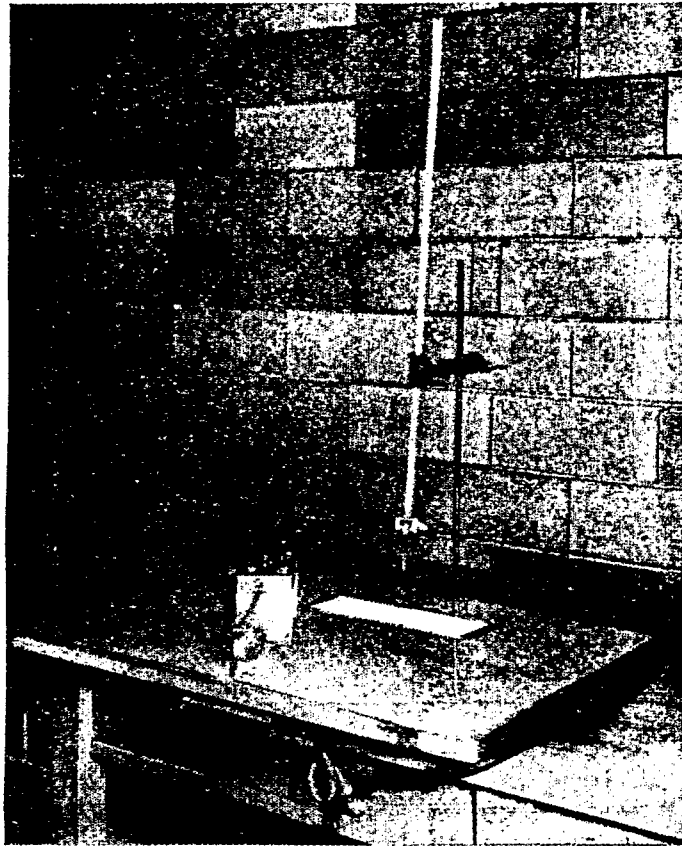


FIGURE 2.—*Washability apparatus.*

U. S. GOVERNMENT PRINTING OFFICE: 1947-707284(180)

For sale by the Superintendent of Documents, Washington 25, D. C.
Price 5 cents

SB 5264